

We claim:

5

- Sub
a1
- 10 1. An apparatus for examining and inspecting at least one sample, in order to determine characteristics of the sample, the apparatus comprising:
a support for receiving a compact disc, the compact disc having deposited on a surface thereof at least one sample;
inspection means for effecting a physical change in at least one sample, the inspection means positioned for registration with the surface of the compact disc bearing at least one sample; and
a traversal mechanism adapted for reciprocating movement, to move the sample in and out of the path of the inspection means.

15

- 20 2. The apparatus of claim 1 wherein the traversal mechanism is a driver having a rotatable drive mechanism that rotates the compact disc.
3. The apparatus of claim 1 wherein the traversal mechanism effectuates positional change between the sample and the compact disc in the radial direction.
4. The apparatus of claim 2 wherein the traversal mechanism effectuates positional change between the sample and the compact disc in the radial direction.

25

5. The apparatus of claim 1 wherein the inspection means is selected from the group consisting of a laser source, an ion source, and a source of visible light, a source of infrared radiation, and a source of ultraviolet radiation.

30

6. The apparatus of claim 5 wherein the traversal mechanism is a driver having a rotatable drive mechanism that rotates the compact disc.
7. The apparatus of claim 5 wherein the traversal mechanism effectuates

positional change between the sample and the compact disc in the radial direction.

8. The apparatus of claim 7 wherein the traversal mechanism effectuates positional change between the sample and the compact disc in the radial direction.
9. An analytical device incorporating the apparatus of claim 1, wherein the analytical device is selected from the group consisting of a mass spectrometers, UV spectrometers, fluorescence detectors, an infrared spectrometers, visible light spectrometers, RAMAN spectrometers, surface plasma resonators, and atomic force microscopes.
10. A mass spectrometer incorporating the apparatus of claim 1 further comprised of an analyzer selected from the group consisting of quadrupole, time of flight (TOF), quadrupole TOF, quadrupole-quadrupole TOF (Qq TOF), triple quadrupole TOF, magnetic sector, and ion trap mass analyzers.
11. The apparatus of claim 1 further comprised of a scanning assembly that includes a plurality of ion guide rods fixed in a positioning guide, the ion guide rods defining an inlet at a first end proximate to the compact disc, an outlet at a second end proximate to an entrance to the analytical device, the positioning guide further having a lens situated within the positioning guide for allowing the passage of laser energy through the positioning guide.
12. The apparatus of claim 11 wherein the positioning guide is fixed in place.
13. The apparatus of claim 11 wherein the positioning guide is movable in at least one of an X direction and a Y direction.
14. The apparatus of claim 11 wherein the positioning guide is movable in the X direction and the Y direction.
15. The apparatus of claim 11 wherein the positioning guide, ion guide rods, and analytical device are movable in concert in at least one of an X direction and a Y direction.
16. The apparatus of claim 11 wherein the ion guide rods are constructed of a

flexible material and the positioning guide and the first end of the ion guide rods are movable in at least one of an X direction and a Y direction.

17. The apparatus of claim 16 the second end of ion guide rods are fixed in place.

18. The apparatus of claim 11 wherein the ion guide rods are constructed of a flexible material and the positioning guide and the first end of the ion guide rods are movable in the X direction and the Y direction.

19. The apparatus of claim 16 the second end of ion guide rods are fixed in place.

20. The apparatus of claim 1 wherein digital information associated with the at least one sample is positioned on the disc.

21. The apparatus of claim 1 wherein the inspection means is further capable of examining and inspecting information stored on the surface of the compact disc.

22. The apparatus of claim 21 wherein the information is stored on the surface of the compact disc on which the sample is stored.

23. The apparatus of claim 21 further comprised of a second inspection means for examining and inspecting information stored on a surface of the compact disc that is opposite the surface on which the sample is stored.

24. The apparatus of claim 21 wherein the inspection means is selected from the group consisting of a laser source, an ion source, and a source of fluorescent light, a source of infrared radiation, a source of ultraviolet radiation, and a source of surface plasma resonance.

25. The apparatus of claim 21 wherein the information stored on the disc relates to sample identity.

26. The apparatus of claim 21 wherein the information stored on the disc relates to movement of the disc.

27. An analytical device for determining the properties of at least one sample of material, the analytical device comprising:
a base,
a substrate adapted to be rotatably received by said base, said substrate having deposited thereon at least one sample of the material to be analyzed,
an inspection means for effecting a physical change in the at least one sample,

21
Cont'd

the inspection means movably associated with said base,
a translation system adapted to effect a change in position between the
inspection means and the substrate, causing the inspection means to register
with the at least one sample on said substrate, at a predetermined location on
said substrate.

5

28. The analytical device of claim 27, wherein the analytical device is selected
from the group consisting of a mass spectrometer, UV spectrometer, a
fluorescence detector, an infrared spectrometer, a UV spectrometer, a UV-
visible spectrometer, a RAMAN spectrometer, a surface plasma resonator, and
an atomic force microscope.

10

29. The analytical device of claim 27 wherein the inspection means is selected
from the group consisting of a laser source, an ion source, and a source of
fluorescent light, a source of infrared radiation, a source of ultraviolet
radiation, and a source of surface plasma resonance.

15

30. The analytical device of claim 27 further comprised of a scanning assembly
that includes a plurality of ion guide rods fixed in a positioning guide, the ion
guide rods defining an inlet at a first end proximate the compact disc, an outlet
at a second end proximate an entrance to the analytical device, the positioning
guide further having a lens situated within the positioning guide for allowing
the passage of laser energy through the positioning guide.

20

31. The analytical device of claim 27 wherein the positioning guide is fixed in
place.

25

32. The analytical device of claim 27 wherein the positioning guide is movable in
at least one of an X direction and a Y direction.

33. The analytical device of claim 27 wherein the positioning guide is movable in
the X direction and the Y direction.

30

34. The analytical device of claim 27 wherein the positioning guide, ion guide
rods, and analytical device are movable in concert in at least one of an X
direction and a Y direction.

35. The analytical device of claim 27 wherein the ion guide rods are constructed

00737560 14500

Sub
91

al
cont id

005737560 121500

sub
a1

- of a flexible material and the positioning guide and the first end of the ion guide rods are movable in at least one of an X direction and a Y direction.
36. The analytical device of claim 35 wherein the second end of the ion guide rods are fixed in place.
- 5 37. The analytical device of claim 36 wherein the ion guide rods are constructed of a flexible material and the positioning guide and the first end of the ion guide rods are movable in the X direction and the Y direction.
38. The analytical device of claim 37 wherein the second end of the ion guide rods are fixed in place.
- 10 39. The analytical device of claim 27 wherein digital information is associated with the at least one sample is positioned on the disc.
40. The analytical device of claim 22 wherein the inspection means is further capable of examining and inspecting the information stored on the compact disc.
- 15 41. The analytical device of claim 27 wherein the information is stored on the surface of the compact disc on which the sample is stored.
42. The analytical device of claim 27 further comprised of a second inspection means for examining and inspecting information stored on a surface of the compact disc that is opposite the surface on which the sample is stored.
-
- 20 43. The analytical device of claim 27 wherein the inspection means is selected from the group consisting of a laser source, an ion source, and a source of fluorescent light, a source of infrared radiation, a source of ultraviolet radiation, and a source of surface plasma resonance.
-
44. The analytical device of claim 27 wherein the information stored on the disc relates to sample identity.
- 25 45. The analytical device of claim 27 wherein the information stored on the disc relates to movement of the disc.
46. A method of carrying out an inspection of a sample of a material comprising the steps of:
- 30 providing a substrate,
depositing at least one sample of a material to be analyzed onto the substrate,
inspecting the sample inspection means for effecting a physical change in at

a1
cont'd

least one sample, probing the sample with inspection means to effect a physical change in the sample;
creating motion between the inspection means and the at least one sample by moving one of the substrate or inspection means.

-
- 5 47. The method of claim 46 wherein the inspection means is selected from the group consisting of a laser source, an ion source, and a source of fluorescent light, a source of infrared radiation, a source of ultraviolet radiation, and a source of surface plasmon resonance.
- 10 48. The apparatus of claim 1 wherein the compact disc is provided with a clear polycarbonate surface, and a coating of a metallization layer over a data layer within the compact disc.

add
a27

005727 0992260